WHAT IS CLAIMED IS:

1. A method for decoding symbols modulated onto a plurality of subcarriers, each symbol corresponding to one or more data bits where each combination of bits represents a unique phase, comprising the steps of:

receiving, at a plurality of antennas, a waveform formed from the superposition of a plurality of modulated subcarriers, each modulated subcarrier having a different frequency and formed by modulating one of a plurality of serial symbols onto a corresponding one of a plurality of subcarriers based on the difference in phase between each pair of adjacent symbols,

extracting the response of each antenna to each of the individual subcarriers;

forming a vector for each subcarrier having a plurality of elements equal to the number of antennas, each element of a vector of a particular subcarrier representing the extracted response of one of the plurality of antennas to the particular subcarrier;

combining mathematically the vectors corresponding to each pair of adjacent subcarriers to calculate the phase difference between each pair of adjacent subcarriers; and

determining the value of each symbol based on the phase differences resulting from the mathematical combination of each pair of adjacent vectors.

2. A method for transmitting frames of data over a wireless access system, each frame having a plurality of data slots, comprising the steps of:

identifying the types of traffic being transmitted between a first communication device and a second communication device; and

reserving at least one data slot in a frame for each type of traffic being transmitted between the first communication device and the second communication device.

3. A method according to claim 2, further comprising the step of:

including a control time slot in the frame that identifies the first communication device, the second communication device, and the traffic type of each data slot in the frame.

4. A method according to claim 2, wherein the identifying step includes the substep of identifying the types of traffic being transmitted between a third communication device and one of the first and second communication devices.

5. A method according to claim 3, wherein the step of including a control time slot includes the substep of identifying the types of traffic that are supported by one of the first and second communication devices.

6. A method according to claim 4, wherein the reserving step includes the substep of reserving at least one data slot in the frame for each type of traffic being transmitted between the third communication device and one of the first and second communication devices.

7. A frame structure for transmitting information between two or more communication devices, comprising:

a plurality of data slots for transmitting data between a first communication device and a second communication device, each data slot corresponding to one of a plurality of different traffic types; and

a control data slot for identifying the first communication device, the second communication device, and the traffic types of each data slot.

8. A frame structure according to claim 7, wherein the plurality of data slots includes at least one data slot for transmitting voice traffic.

9. A frame structure according to claim 7, wherein the plurality of data slots includes at least one data slot for transmitting video traffic.

10. A frame structure according to claim 7, wherein the plurality of data slots includes at least one data slot for transmitting data ~~between a third communication~~ device and one of the first and second communication devices.